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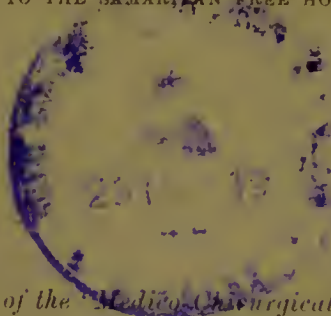
LARGE BILE CYST OF THE LIVER : JAUNDICE WITHOUT CHOLELITHIASIS

INCISION AND DRAINAGE: RECOVERY

BY

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SURGEON TO THE SAMARITAN FREE HOSPITAL.



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LARGE BILE CYST OF THE LIVER: JAUNDICE WITHOUT CHOLELITHIASIS INCISION AND DRAINAGE: RECOVERY

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SURGEON TO THE SAMARITAN FREE HOSPITAL

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DR. HALE WHITE considers that cysts of the liver other than hydatid are very uncommon, seldom give rise to any symptoms during life, and are obscure in their mode of origin. Langenbuch, Waring, and Rolleston seem to be of the same opinion. On that account I think that the present case, where operative interference was necessary, is worth recording.

Mrs. R. C—, aged 42, was admitted into the Samaritan Free Hospital under my care on March 4th, 1903, suffering from deep jaundice and great enlargement of the liver.

She had never been strong, but had not suffered from any malady more severe than two attacks of influenza, the last being in December, 1902, when the jaundice was already marked. None of her near relatives or children

had been subject to jaundice or to attacks of gall-stone colic as far as she could make out after careful inquiry.

She had been pregnant seven times, bearing five children to term. Six years before admission she aborted at the second month, through a shock caused by seeing a man carried to hospital after a street accident. No jaundice was observed as the result of the shock. The second abortion also took place at the second month. It occurred three years before admission, and its cause must be dwelt upon. The patient slipped in her back yard and fell forwards, striking the right hypochondrium against the edge of a washing tub. A few hours later she aborted. She did not feel much pain in the hypochondrium after the smarting caused by the blow had subsided, and certainly was not jaundiced.

The last normal pregnancy ended by spontaneous delivery in April, 1901, and from that date the patient's health began to deteriorate. After convalescence from the puerperium she consulted Mr. Corrie Keep at the Out-patient Department of the Samaritan Hospital. He detected a movable right kidney. About four months before admission she noticed that her face began to grow yellow. For weeks there was no pain, but vomiting occurred on certain occasions, associated in every case, it would seem, with errors of diet. More than once she had attacks of profuse perspiration. She applied to St. Mary's Hospital, and was for a time under Dr. Luff as an out-patient; enlargement of the liver was detected, but the evidence of hydatid disease was considered doubtful. An attack of influenza greatly reduced her strength. She again consulted Mr. Keep, who noted that the liver was much enlarged. Ten days before admission the patient suffered for the first time from a very violent attack of pain in the upper part of the abdomen, lasting for a few minutes. Several other such attacks followed, and she felt gnawing pains across the epigastrium. She was troubled with diarrhoea, passing abundant semi-solid white stools.

When I first examined the patient she appeared to be a somewhat emaciated woman, deeply jaundiced, the conjunctivæ being of a bright yellow colour. Itching was severe and kept her awake. She was naturally cheerful, and quite free at the time from any depression, a point of interest in relation to an episode during convalescence.

The abdomen was considerably distended, the parietes thin with distinctly enlarged veins. Numerous petechiæ were scattered over the deep yellow skin. In any position there was resonance in the flanks and hypogastrium. To the right of the umbilicus was a large fluctuating swelling, which I noted at the time as in the situation of the gall-bladder; it reached to a little below the umbilical level and was very prominent, bulging under the skin. Hepatic dulness reached to the fourth rib in the line of the nipple. The edge of the left lobe of the liver reached the umbilical level; it was thin, easily grasped, but very tender. The edge of the right lobe in the axillary line was thin; its surface below the hypochondrium felt somewhat irregular. The right kidney was slightly movable and hardly enlarged.

The pelvic viscera seemed healthy, the catamenia had become scanty during the present illness, but remained regular. The pulse was 84, small, hard, and regular; there was no œdema of the legs or of any other part, nor were there hemorrhoids. The heart and lungs were healthy. The temperature was 100° in the mouth on the night of admission, but fell to normal after rest in bed.

The appetite was fair. The patient could eat fats and sweets with relish, and can do so now after the operation. There was a sensation of weight in the epigastrium after food with frequent nausea, but never vomiting after admission. The tongue was quite clean and not raw. The motions were solid and white; once or twice in the six days before operation they showed a trace of colour. About the same time the fluctuating swelling became less tense and the jaundice slightly less intense.

The urine, examined daily during the six days, was at

first scanty, but the diarrhœa from which she suffered prevented satisfactory determination of the amount excreted every twenty-four hours. On the 8th and 9th it exceeded thirty ounces. During the period in question she took twenty grains of chloride of calcium and three minims of liquor strychninæ three times daily (not together). The urine was always turbid and deep orange-brown in colour, the sp. gr. 1022 to 1024; it cleared on boiling, becoming light olive-green; on adding nitric acid, or boiling after the addition of the acid, a precipitate, deep purple in colour, appeared. When the cold test was tried a deep purple and above it an opaque white line developed between the urine above and the acid beneath. There was no sugar.

The great enlargement of the liver suggested malignancy, but the patient's health, though feeble, was not so bad as in most cases of large growth of the liver. The diarrhœa appeared to account for the emaciation.¹ The cystic swelling was very like a dilated gall-bladder as far as its position was concerned, but it was quite fixed. Hydatid disease seemed possible. I determined to make an exploratory incision and empty the fluid, doing more if practicable and advisable.

Accordingly I operated on March 10th, with the assistance of Mr. Butler-Smythe; Major Carr-White, I.M.S., worked the aspirator, and Dr. Collingwood administered ether and chloroform.

The patient was placed with a large pad under the loins, as when choledochotomy is performed. I made an incision along the outer border of the right rectus over the prominent fluctuating swelling. There was no oozing; one vessel required ligature. A large cyst appeared with semi-opaque greenish-brown walls. I took it at first for gall-bladder. A pad was slipped into the kidney pouch and another below the liver; then the aspirator was used,

¹ It was possibly due to some medicine which she took after the attack of influenza.

and two pints eight ounces of pure deep green bile were removed.

When it collapsed the relations of the cyst puzzled me at first ; but on raising its lower part I found the gall-bladder perfectly healthy behind and below it. The cystic, hepatic, and common ducts were plainly visible, quite normal, and empty. The pancreas was soft and supple, and there were no omental or intestinal adhesions. The right lobe of the liver was enlarged, the surface was not irregular, but opaque from perihepatitis ; the left was of a uniform rich orange-brown colour, with the capsule quite free from opacity. No calculi nor any more cysts could be felt in the liver. The great cystic cavity occupied the lobulus quadratus and apparently the whole of the left half of the right lobe to the diaphragm and the back of the abdominal cavity. The gall-bladder was about three inches long, thin and flaccid ; it contained a little fluid, presumably clear, and was very movable ; the cyst had pushed it away from its groove. Its walls were healthy, and no calculi could be felt. The right kidney was healthy and mobile.

I inserted a quarter-inch red rubber tube into the cyst and sewed the edges of the opening, which I made around the aspiration puncture, to the peritoneum at the upper angle of the wound. The rest of the peritoneum was united with a continuous No. 1 silk suture, the sheath of the rectus (I had not divided the lateral muscles) in the same manner ; the wound in the integuments was closed with interrupted silkworm gut.

The patient slept well a few hours after being put to bed ; I withdrew on the same evening sixteen ounces of pure green bile. Dr. Cuthbert Lockyer examined the bile removed at the operation ; it contained no trace of clot or hydatid elements.

The temperature during convalescence never exceeded 100° ; the pulse was 96 for several days. The itching disappeared within twenty-four hours. The area of hepatic dulness was found to be reduced to its normal

limits; the left lobe became less and less tender to touch. During the first week the dressings were saturated with green bile, and about a pint of bile was removed through the tube daily by aid of a syringe. The rubber tube was gradually shortened, but was not entirely removed until the seventeenth day.

By the second week the jaundice began to diminish steadily; the conjunctivæ were quite white after April 1st. The urine soon cleared, but a trace of albumen persisted for three weeks. At first I gave liquor strychninæ in moderate doses. I also administered five grains of *fel bovinum* three times daily from the third to the sixteenth day. The escape of bile set up a troublesome pustular eruption on the fourteenth day.

Early in the third week the discharge of bile began to lessen. The motions were still white. The patient was depressed, as is often the case in jaundice, but the complexion continued to clear. The patient was allowed port wine and took quinine. On April 3rd the nurse informed me that the motions passed in the morning were coloured. Next day I examined them; they were of a medium brown colour. The patient was once more cheerful; the conjunctivæ had become pearly white. Henceforward till April 17th, when the patient left the hospital, thirty-eight days after the operation, the motions remained dark, and the discharge from the fistulous track left after removal of the tube diminished. An ounce or two of purulent bile was removed every morning through the track; the cyst was occasionally washed out with *chinosol*.

At her discharge from hospital, on April 17th, the patient was in excellent health. The fistula had a narrow orifice, and the probe passed four inches upwards and backwards along a narrow track, and on careful probing I detected a cavity or pouch, two inches from the surface, into which the probe passed for about two inches. The cavity, owing to the nature of the liver tissue, could not have closed up entirely, but probing could not determine precisely how far it had closed. The

After history Mrs Coates (cont'd)

I saw patient on March 9th 1909. There had been
no jaundice for years, sinus absolutely closed
area of hepatic dulness normal, edge of liver
thin. No hernia of cicatrix. I ordered her a
belt in December 1908 & it has checked the catarrh
basis. I supplied a 2 $\frac{3}{4}$ inch ring pessary
(has had two labors since operation - see M.D.
note book - no jaundice during the pregnancies)

June 1909. Correspondence with Dr. Krause
Assistant Surg. & Dr. Hebrauer at Braunschweig
in Braunschweig about this woman's case (see M.D. notebook p. 2 & 3). He wrote for
Eckstein's report & says "Cholelithiasis".

Sept. 1910. Dr. Hebrauer referred her to me
for hemorrhoids. I sent her on to Kief

patient came up to the hospital occasionally after her dismissal to have the wound dressed; the cavity was syringed out daily at home with Condyl's fluid.

On May 1st I found some pieces of a soft dark brown material mixed with pus in the dressings over the orifice of the fistula; some clot seems to have come away on the previous day. Dr. C. Lockyer kindly examined the brown material; it gave negative results with Gmelin's and Pettenkoffer's tests, and an ethereal extract showed no cholesterin.

On October 19th, over seven months after the operation, I had an opportunity of examining the patient. Her complexion was quite clear and she had gained flesh; the catamenia continued regular. The fistula was two and a half inches deep; a little pus discharged from granulations around its orifice. X

Pathology.—Rolleston, Waring, Hale White, and others who have written on simple non-hydatid cysts of the liver admit that they are exceptional, obscure in their mode of origin, and rarely give rise to any symptoms during life. They further imply that such cysts are usually small. Kilvington states that very large cysts of this class are nearly always single. None of these writers find that simple cysts contain bile. I need not dwell on the cystic degeneration which often involves the kidneys as well as the liver,¹ nor on cystic adenoma where the cysts contain a colourless liquid (Ziegler). Keen, of Boston, U.S.A., has operated in cases of adenoma.

Turning back to simple cysts, I find that specimens in the museums of hospitals in London do not throw much light on the present case. On inquiry I have been informed by the curators and pathologists of these insti-

¹ For fine examples of this condition see F. S. Eve's specimen (Mus. R.C.S., Path. Ser., No. 2758c), and Henry Morris's (ibid., 2758d). Both were from adults. In Eve's case it is stated in the catalogue that the cysts were formed by dilated gall-ducts, and contained straw- and chocolate-coloured fluid. It seems very improbable that the cyst in the present case comes under this category; the right kidney was movable, but not enlarged.

X Jan. 1908. Much pus discharged from the sinus after confinement in Dec. 1906. No choleliths & of course, no sign of any new growth, no jaundice. Patient very pale & thin. See Dr. A's special note book. Nov. 1907. No jaundice. Sinus still discharges. Enderby's below movable. See note book

tutions that no example of a large cyst which contained bile is to be found in these museums. Cystic dilatations of intra-hepatic bile-ducts distinctly caused by obstruction of the three outer ducts are not rare, but in my case the outer ducts were not obstructed but empty. There was no evidence in my case of hypertrophic biliary cirrhosis, which causes dilatation of intra-hepatic ducts.

The specimens in the museum of the Royal College of Surgeons are somewhat familiar to me. I will put aside pedunculated cysts of the liver—their origin may or may not be different from that of the cysts entirely inside that organ, but this question cannot conveniently be debated; the different views of Langenbuch and Goodhart as to Ward Cousins' case (Mns. R.C.S., Path. Ser., No. 2758) will be referred to presently. The surgical treatment of pedunculated and of sessile cysts must differ greatly. All the intra-hepatic simple cysts in this museum seem to have contained clear fluid. The only specimen in any way akin to my case is No. 2757B, which I find is figured in Waring's treatise (fig. 22). That author observes that it is of about the size of a walnut, and attached to the anterior surface of the liver immediately above and to the right of the gall-bladder. It seemed to me to be connected with the gall-bladder, and only separated from its cavity by a thin septum; it may therefore represent a congenital malformation of the gall-bladder itself; it held an albuminous fluid. The cyst in my case contained pure bile, and was quite unconnected with the gall-bladder.

When we turn to the question of bile in the liver cyst we find that we cannot assume that the contents prove the origin of that cyst from an intra-hepatic bile-duct. I shall speak presently of a case under Peyton Beale, where retention seemed clearly the cause of cystic dilatations in the liver containing bile; but the authorities to which I have referred do not succeed in distinguishing "serous cysts" from "bile cysts." Rolleston believes that in the earliest stages bile is probably present in simple liver cysts, but disappears as time advances; whilst Ziegler

finds that these cysts are, as Virchow pointed out, sometimes developed from vasa bilifera aberrantia, and in cases where that origin has been demonstrated the cysts did not contain bile.¹

Thus a bile cyst does not necessarily mean a cyst developed from a bile-duct; possibly it may not always originate in any kind of duct; in my case it might have arisen from the breaking-down of liver tissue with rupture of a duct. I shall presently say more about the accident which happened to the patient, and shall refer to the question of congenital malformation. The cyst was too large to allow of theorising about its origin; I shall therefore dismiss these purely pathological questions, and turn to instances of large liver cysts already published, whilst the possibility of hydatid disease will be discussed when I analyse certain features in my own case.

Reported cases of large non-hydatid cysts.—In several instances cysts of the liver have been found projecting from the surface of that organ, so that they could be removed more or less completely by operation. A few words may be said about these pedunculated cysts. Langenbuch refers to cases reported by Müller of Aix-la-Chapelle, Berg, and Hueter; the latter operated upon a girl aged eleven. The cyst held over four pints of a greyish fluid containing cholesterin; it was removed entire; its adherent part caused bleeding when separated, and a big gap was left in the liver, closed by sutures. The patient recovered. Kaltenbach excised part of the liver during a similar operation, but the tumour was probably a cystic adenoma. The same may be said of Müller's case. The best known removable hepatic cyst was that operated on by Ward Cousins. It simulated an ovarian tumour, and contained two and a half gallons of a clear, limpid, yellow fluid, which apparently was not

¹ I have not dwelt on cysts containing bile or "inspissated green secretion" developed from hepatic cells (F. T. Paul, 'Trans. Path. Soc.,' vol. xxxvi, p. 238). They are related to adenoma, and are always multiple.

analysed. There was no true pedicle; the attached portion of the cyst was left behind and fixed to the upper part of the abdominal wound. Death occurred in thirty-six hours. All organs were found healthy, even the liver. It is very doubtful if this cyst had anything to do with the bile-ducts in the liver. Langenbuch, relying on the original report in the 'British Medical Journal' (vol. ii, 1874, p. 700), observes that it is not clear that the cyst was not of hydatid origin; but Dr. Goodhart, who examined it when it was mounted as a specimen in the museum of the College of Surgeons (Path. Series No. 2758), could find no hydatid elements in the cyst.

I will now give a short summary of five cases where a unilocular, not hydatid cyst lay inside the liver.

Frederick Bird, of Melbourne, in a case reported by Kilvington, diagnosed a tumour of the liver as not hydatid because the low tension defined by palpation contrasted with that so prominent in hydatid disease. The cyst was opened, fixed to the parietes, and drained. Two years later another developed in the liver, or else the old cyst had filled again. Nothing is said about its contents, but Kilvington includes it under simple cysts which, he states, contain albuminous fluid, and neither bile nor jaundice are mentioned.

Bayer, of Prague, operated on a multiparous woman aged 56, subject to fluctuating swelling in the region of the liver for four months, with pallor, but no jaundice, and irregular action of the bowels. The cyst contained eight litres, or over thirteen and a half pints, of a brownish-grey fluid; it was drained, and fluid, which never contained bile, escaped for some time. A few months after the operation the cavity suppurated, but the patient ultimately did well. Bayer attempts to trace the origin of the cyst to an old and extensive inflammatory process along the gall-ducts, but admits that the pathology of the case was not evident.

Winckler's patient was a woman aged 38. As in Ward Cousins' case, ovarian cystic disease was suspected.

There was no jaundice. The cyst was exposed by an exploratory incision, and eight litres of a glairy yellow fluid were removed. This fluid was highly albuminous, and contained a trace of bile according to Gmelin's test. The cyst wall was of pure connective tissue, from one to two millimetres in thickness, without either glands in its substance or epithelium on its inner surface. The cyst was drained and convalescence was somewhat protracted.

North reports a case where the cause of obstruction was detected after death. The patient was a man aged 45, subject to chronic jaundice. A cystic swelling in the hepatic region was tapped, and five pints of a coffee-coloured fluid were drawn off. The patient died on the second day. A unilocular cyst as big as a man's head was found closely connected with the left lobe of the liver. A calculus of the size of a marble was found impacted in the common duct, and there was a large stone in the gall-bladder. We may agree with Waring that the cavity containing bile in this case must be ranked as a retention cyst, but he notes that the nature of the contents was not made clear.

The fifth case was reported by Mayo Robson. The patient was a woman aged 42, subject to hypertrophic cirrhosis with jaundice. Churton detected fluctuation, and removed six ounces of clear faintly straw-coloured fluid with an aspirator. Two months later Robson opened the cavity with a Paquelin's cautery; about eight ounces of fluid came away. Oozing of blood caused great trouble; it continued for five days, when it ceased, and bile discharged freely from the wound; the jaundice began to disappear. At the end of three weeks local trouble set in with fever, the jaundice remaining stationary. Over a month after the opening of the cyst Robson performed cholecystotomy; there was a large calculus in the gall-bladder which was removed, and two in the common duct. Bile continued to drain from the opening in the cyst, but only a little bile-stained mucus issued from the drainage track which opened into the gall-bladder. The patient

died of pneumonia on returning home ; unfortunately there was no post-mortem.

Thus in the cases reported by Bird, Bayer, and Winckler there was neither jaundice nor cholelithiasis ; in Winckler's alone was there any trace of bile in the contents of the cyst.

In North and Mayo Robson's cases there was jaundice and obstruction from calculi in the common duct, very definite in North's case. The contents seemed to consist more or less of bile in North's case, whilst in Mayo Robson's bile certainly flowed from the cyst after it was opened.

In my own case there was marked jaundice but no trace of cholelithiasis ; the cyst contained pure green bile.

Quite recently Miller of Washington opened and drained a cyst containing five pints of bile, in a girl under three years of age ; the abdomen was enlarged at birth. The motions were pale, yet jaundice was absent ; after the operation the motions became coloured. Miller considers that the tumour was a congenital dilatation of the gall-bladder and bile ducts, but the tumour occupied part of the liver, the round and suspensory ligaments being attached to its upper surface. Thus Miller's case may be of the same character as my own. I shall refer to it presently in reference to heredity.¹

Carcinoma in liver containing gall-stones.—In the cyst which I opened no gall-stones were found, nor did any

¹ Since the above note was made a more complete account of this case has appeared in the 'Amer. Journ. of Obstet.,' vol. xlviii (Aug., 1903), p. 182. Nothing is said about the gall-bladder being defined at the operation, "nothing definite could be determined with regard to the bile-ducts, hepatic artery, or portal vein." The cyst was opened by the thermo-cantery three days after the operation, when it was sutured to the edges of the upper end of the abdominal incision. "The exact nature of the condition is of course open to surmise," but Dr. Brown Miller believes "that the cyst was a tremendous dilatation of the gall-bladder beginning at an early period of intra-uterine life." For reasons given above, I suspect that it might have been, as in my case, entirely intra-hepatic.

come away through the fistula. In Case 22 in Mayo Robson's text-book the gall-bladder was opened and a number of gall-stones were removed; many more calculi were then found lying mixed with semi-purulent fluid in a cavity in the liver substance itself, "having evidently ulcerated through from the gall-bladder." But in the present case the gall-bladder was free from calculi, disease of its coats, or adhesions to the liver. Knowsley Thornton once removed a number of calculi from a cavity in the liver, but I cannot ascertain whether the gall-bladder was in any way involved.

We must remember that the relation of calculi to the intra-hepatic ducts is a question not yet settled. Waring believes that pathological evidence entirely favours the theory that biliary calculi nearly always develop in the gall-bladder. "In most of these cases in which calculi are found in the right or left hepatic ducts, and in the portal fissure of the liver, they have formed in the gall-bladder, and have passed thence into the localities where they have been found. It appears possible, however, in some cases that the calculi have arisen in the commencement of the intra-hepatic bile-ducts." But he has detected an incrustation of bilirubin mixed with lime salts on the walls of the intra-hepatic ducts—a near step surely to the development of calculi. Mr. Peyton Beale informs me that he once performed cholecystotomy for calculi in the gall-bladder and common duct. Two years later the patient died of pneumonia, the liver was found in a spongy state, full of holes, the biggest half an inch in diameter, containing bile; yet it must be noted that though the gall-bladder and common duct had contained calculi none were found in any of these holes—dilated bile-ducts, no doubt, in the liver. On the other hand, Mr. Percy Paton reminds us of a specimen in the Westminster Hospital Museum showing the intra-hepatic ducts much dilated, and containing a large number of stones.¹ He

¹ "581. A slice from an enlarged liver; the bile-ducts are much dilated and filled with inspissated bile, and in some cases with definite pigment

reasonably infers that this condition explains why stones often pass from an abdominal wound when the gall-bladder and the three ducts have recently been cleared of calculi.¹

Lastly, in my own case there were no calculi either in the liver cyst or outside it. The above cases seem to me worth considering in relation both to bile cysts in the liver and to the development of calculi. The Westminster Hospital specimen seems to prove the theory that gall-stones may originate in the liver, whilst the weight of evidence from the other cases above related is in favour of Waring's opinion that as a rule they begin in the gall-bladder.

Having made some mention of other cases of bile cyst in the liver, I will now dwell on certain more or less essential features in my own case.

The cause: injury or pregnancy?—The history of a blow on the right hypochondrium, nearly three years before the jaundice set in is, to say the least, highly suggestive. It was severe, and abortion followed in a few hours. This blow might have caused the rupture of a duct inside the liver, followed by very slow extravasation of bile into bruised liver-substance around it. A cystic cavity could thus be formed, and ultimately all the bile secreted in the liver might be poured into the cyst. The pressure of the cyst in some way prevented the passage of the bile into the hepatic ducts; possibly, however, a small calculus blocked each of the main ducts which unite in the transverse fissure to form the hepatic duct.

calculi. One of these has been dislodged from its bed, and is stitched to the surrounding liver substance.

History. The specimen is from a liver which was similarly affected throughout its whole extent. The gall-bladder was full of stones, but was but little dilated. The obstruction was caused by the pressure of a hydatid cyst, about the size of a small orange, which was growing in the portal fissure. *Presented by Mr. Stonham.* Some of the calculi are quite a quarter of an inch in diameter.

¹ I must add Rolleston's case, "Large Intra-hepatic Calculi in Diabetes," 'Trans. Path. Soc.,' vol. xlv, p. 133, where the gall-bladder and the three ducts "did not contain any calculi and were not dilated." In that respect it was homologous with my own case of bile cyst.

Handwritten notes:
 "Hocher's Skizzen der Tuberschwangergeschichte." Monatsschr. Geb. u. Gyn. Vol. XXII. (Feb. 1890) p. 263.
 "Indikationen und Prognose der Gallenblasenoperation." Monatsschr. Geb. u. Gyn. Vol. XXII. (Feb. 1890) p. 263.

The evidence gained during the operation almost proved that the original seat of disease was entirely inside the liver. The cyst occupied a great part of that organ; the adjacent capsule all over the right lobe was thick and opaque, but did not adhere to any structure, and over the left lobe the capsule was quite transparent. There was absolutely no trace of inflammatory changes around the hepatic, cystic, and common ducts, the gall-bladder and lesser omentum. These familiar structures looked almost diagrammatic, so plainly could they be seen when the liver was drawn well up and forward. There was no thickening of the hepatic duct at the transverse fissure or elsewhere. Nor was there any vestige of omental and intestinal adhesions; the duodenum was perfectly healthy, and the pancreas soft to the touch. In short, though there was an enormous cyst inside the liver, there was no evidence of any disease of the important external structures belonging to it. We know well enough, if we have operated on those parts, how much the ducts and gall-bladder are altered by a very short and moderate inflammatory attack, and the traces of the attack do not tend to disappear when the inflammation subsides. There were no such traces in this case. I feel certain on that account that the cyst was not the result of any disease or injury affecting these parts outside the liver.

Against the theory of injury in my case, it may be urged that blows on the right hypochondrium are common and seldom appear to cause damage to the liver; whilst when they do, that damage is generally rupture involving the fibrous and serous coat. There is of course no absolute proof that the liver was damaged when the patient fell against the washing tub. I must dwell on the fact that pregnancy occurred and went on to term between the date of the accident and the appearance of the jaundice.

In a bad case of obstructive cholangitis of very old standing, where I removed a stone from the common duct,

The case of the patient is a case of recurring jaundice in
 the success was pronounced, with a total absence of jaundice in 3 successive pregnancies.
 Dr. M. G. F. 1910. p. 264. Jaundice. Gall stones during pregnancy of the
 "Surgeon-General's Report" July 1910.

the acute symptoms dated from a recent pregnancy. Potocki has shown how biliary stasis, common in pregnancy, allows the *Bacillus coli* to ascend the biliary ducts, hence the frequency of cholelithiasis in pregnancy.¹ In the present case there was no such morbid condition in the gall-bladder and the three ducts, but perhaps when the injury which caused abortion was inflicted there was localised biliary stasis due to the pregnancy, whilst the injury caused the rupture of an engorged duct inside the liver.

Potocki would possibly urge that biliary stasis alone caused the development of the cyst during the last pregnancy, after the abortion. But after all the pathologist may contend that the attribution of the cyst to the injury or to changes during pregnancy are pure hypotheses. The cyst may have arisen after the fashion of other bile cysts to which I referred when I dwelt on the general pathology of the subject.

As I have already observed, there were no characteristic symptoms of hypertrophic biliary cirrhosis in this case. The jaundice, usually permanent in that disease, disappeared when the cyst was drained, and the bile could pass into the bowel.

Congenital disease and heredity.—The pathologist may suggest that there was some congenital malformation or disease in the intra-hepatic ducts, the results of which did not, for some reason, develop until adult life. There was no way of getting at any proof of such a condition in my case. The patient's children and near relatives seem never to have suffered from jaundice, or from symptoms of cholelithiasis. In Cocking's case, where the patient was fifty, and had been jaundiced from the age of three weeks, her second child developed jaundice when a month old, had severe epistaxis (a complication from which the jaundiced mother had always been free),

¹ Hence also its greater frequency in women (about five times more common than in men). Some physicians believe that the pressure of stays, etc., on the liver promotes cholelithiasis.

1) Pickers. I cured "acute cholecystitis in the
 hepatoma, resulting peripheral repress chole-
 cystitis, recovery" Ann. Intern. Med. Vol
 51. p. 374 (March 1905). Gurepny: in case of colic au

and died in its fifteenth week "with a mottled black and yellow skin." Since I reported a case, already alluded to, of very chronic jaundice, which dated from early girlhood, the patient's eldest child, aged eleven, has suffered from a severe attack, with no symptoms of gall-stones. The patient had four or five attacks, all unaccompanied by pain, before she was eighteen; then for fifteen years there were no hepatic symptoms; at length cholelithiasis set in. In Miller's case the cyst existed at birth, and was drained before the patient was three years old. It clearly was in the liver, and the evidence that it was part of the gall-bladder was defective, as Miller does not state that he determined either the position or the condition of the gall-bladder and the three ducts when he operated. It is easy to conceive that a congenital cyst of this kind might lie latent until adult life. These remarkable clinical facts suggest that overlooked heredity was possible in the present case, whilst local pre-natal or infantile disease with unusually tardy results was quite probable.¹

The cyst.—The chief feature in this case was the presence of a large unilocular cyst in the liver containing about three pints of normal green bile and no trace of hydatid elements or free blood. The cyst was quite unconnected with the gall-bladder and the three ducts, none of which were obstructed. I regret that I could not excise a piece of the cyst wall for pathological examination, but I did not deem it prudent to do so; the cyst was so completely part and parcel of the liver that when it collapsed I could find no excess of tissue to trim away, and the edges of the incision could just be neatly apposed to those of the wound in the parietes.

The contents of the cyst.—At the operation the cyst

¹ See, for further information on congenital and long-standing jaundice, F. Parkes Weber, "'Simple Persistent' and 'Congenital Persistent' Jaundice, Family Biliary Cirrhosis, and Family Tendency to Jaundice," 'Edin. Med. Journ.,' Aug., 1903, p. 111, an important monograph published since the above was written.

*considère la grossesse guérison, accouchement
prématuré. Comptes rendus de la Soc. d'hist. de Gyn.
de Paris Vol. XII. (May 1910) p. 233. Gillis et Dujol
"Bileuse hépatogène avec ictere chez une femme en
grossesse."*

contained over three pints of pure olive-green bile, two and a half pints being removed at once and sixteen ounces a few hours later. According to Copeman and Winston olive-green is the normal colour of bile.

Out of the five cases of liver cyst above related, in Mayo Robson's alone did the cavity discharge bile, whilst when first opened the fluid was clear, and there were calculi in the gall-bladder and the common duct.

Jaundice.—This symptom was marked in my case, but why it appeared suddenly four months before operation I cannot explain. It began to subside when the bile flowed freely out of the drainage track after the operation, but the bile did not colour the faeces until the fourth week. Thus some obstruction must have existed till that date, although the pressure of three pints of bile had been removed at the operation. The cyst probably pressed on the ducts or set up catarrh in them, as has been observed when jaundice is associated with hydatid cysts (Waring). Perhaps catarrh existed in my case, and did not subside until the fourth week; but the three ducts looked very healthy at the operation, so that it must have been the radicles of the hepatic duct that continued to be obstructed for a while by catarrh or some other cause.

The experiences of Bayer and Winekler, as well as the familiar instance of hydatid disease, show that large intra-hepatic cysts are not necessarily associated with jaundice.

Hæmorrhage in jaundice.—Petechiæ were very conspicuous on the trunk. Menstruation continued quite regular during the jaundice, but the show of blood was diminished, not increased; the period appeared, with moderate show, on the second day after operation. In Cocking's case the patient, aged 50, and jaundiced from infancy, had never suffered from hæmorrhages at labour, nor at the catamenial period, which was always regular, nor after the extraction of teeth.

How far the moderate doses of chloride of calcium benefited my patient I cannot say. I had not the least trouble

from hæmorrhage during the operation. The dressings over the drainage-tube were over-saturated with deep green bile for nearly a week, and had to be changed three times a day at first, though the cyst was emptied night and morning by means of a syringe. Yet these dressings showed but little blood-staining. No chloride of calcium was given after the operation. This absence of any tendency to hæmorrhage was marked in a very different case of deep jaundice to which I have already referred. When I operated in the spring of 1902 the cause was obstruction of the common duct by a single calculus, with severe cholangitis and high temperature. In this case, as in that now reported, there were petechiæ; the catamenia were also regular and moderate; chloride of calcium was given before operation, but not afterwards, and there was no subsequent trouble from oozing.

Some authorities may think that the chloride of calcium had nothing to do with the freedom from hæmorrhage observed in both these cases, but Mr. Mayo Robson might hold, on the other hand, that I ran a considerable risk in not administering that salt after as well as before the operation. In his case of jaundice with liver cyst which discharged bile when it was opened the subsequent oozing gave great trouble. More recently before this Society the same authority related how almost uncontrollable oozing occurred on the second day after choledochotomy in a case where jaundice was severe; it ceased when the chloride of calcium was resumed.

Lastly, tendency to hæmorrhage is most marked in chronic obstruction of the common duct with coincident disease of the pancreas (Stewart of Philadelphia), complications which did not exist in my case.

Hæmorrhage into the cyst.—No trace of blood could be detected in the bile removed during the operation, and little, if any, in the bile which drained away from the wound afterwards; in short, there was no hæmorrhage into the cyst. It is evident, however, that a patient who walks

about with a cyst containing three pints of fluid is liable to that complication.

Kilvington, in a monograph on simple cysts of the liver, which he finds contain fluid usually albuminous, relates a case under the care of Allen, of Melbourne, in order to show that hæmorrhage into large cysts may prove fatal. Allen's patient was a young woman found in a railway waiting-room in a state of collapse. She died shortly afterwards, and a large cyst full of blood was discovered in the liver. Minute hæmorrhages, Kilvington observes, are of frequent occurrence even in tiny cysts. I cannot find a more complete report of Allen's case; I presume that it was not hydatid and did not contain any elements of bile, else it would not have come under the scope of Kilvington's observations.

The question of hydatid disease.—The total absence of hydatid membranes in this large cyst, and the fact that the pure green bile which it contained was free from any trace of microscopical elements of hydatid cysts, make it highly improbable that the cyst was a product of hydatid disease. Bile may enter a hydatid cyst in the liver through communication with the gall-bladder or the three ducts due to inflammatory processes; even a lumbricus has found its way into a hydatid cyst in this manner (Frerichs, quoted by Langenbuch). This leakage kills the parasite, and the cyst either shrivels up or suppurates; in rare instances the parasite has survived (Waring). But there were no adhesions in my case to the gall-bladder or the three ducts, and supposing that we assume that the cyst was hydatid, and that an intra-hepatic duct burst into it, how could we make out that the bile or some other agent cleared away all traces of accephalocysts, hooklets, etc.? In fact, all clinical and pathological evidence was against the existence of hydatid disease.

Menstruation.—The catamenia had been regular during the existence of the jaundice, but scantier than before the illness. They appeared on the second day after the operation; the show of blood was distinct but slight.

Bond Sidney A. "On the
parasitic cysts of the liver"
Lancet I, 1913, p 951



Cocking's case shows that a woman may menstruate regularly and bear children although subject to jaundice from infancy. Jaundice we know does not necessarily cause menorrhagia, nor does amenorrhœa seem to be the rule; when present it is most likely the result of ill-health or anæmia. In Mayo Robson's case of biliary fistula¹ menstruation was suppressed, but returned as soon as the course of the bile was successfully directed into the bowel by an operation.

The treatment.—The drainage of the cyst was clearly indicated, nor did any further procedure appear to be called for when I operated. The result was most satisfactory. By the fourth week, when bile began to pass into the bowel, the chances that a second operation to establish a communication between the cyst and the bowel would be necessary became remote.

It is not remarkable that suppuration has occurred in the track, which is not likely to become obliterated for some time, as the hepatic tissue cannot readily close in around a cavity so capacious. In Bayer's case an abscess developed a few months after the operation; probably the drainage track was allowed to close too soon. Infection from sutures is difficult to avoid when a big liver cyst is drained.

We must agree with Kilvington that the curette should never be used; there is usually no epithelium lining big cysts that could secrete so as to fill the cyst again. That writer recommends that a simple cyst should be dropped back when all the fluid has been allowed to escape, but he adds that when calcareous plates are present, or when there is any bile in the fluid, drainage is necessary. Of course, dropping back the cyst, or rather the liver with the big cystic cavity inside it, would have been out of the question in the present case.

In conclusion, I think that the total absence of any symptoms of shock after this operation is instructive.

¹ In Noel Paton and Balfour's case the patient had passed the menopause.

The common opinion that an operation on the upper part of the abdominal cavity necessarily involves shock is quite untrue. The alarming symptoms sometimes observed seem distinctly due to prolonged handling of the pancreas, duodenum, great vessels, and nerve plexuses. In the days when incisions were made very short the operator's fingers, working in the dark, must often have bruised these important structures. Now that the parts are freely exposed to the operator's eyes much less handling is needed. In this case I could see everything, and the parts involved in chronic cholelithiasis were all free from disease. The liver itself bears handling very well.

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Gnabrück, d. 7. 6. 09.

Sehr geehrter Herr,

Im Auftrage meines Chef, Herrn
Dirkhor Kirmann, der für die
Überwindung Ihrer Arbeit bestens
danken lässt, erlaube ich mir
Ihnen folgendes Anliegen zu unter-
breiten.

Die an Cholelithiasis operierte
Patientin, Kirmann (Centralblatt
für Gynäkologie 1909 № 20) ist
zu ihrer in der nächsten Zeit
zu erwartenden Niederkunft

in die Ausbalt aufgenommen
worden. Ich bin von meinem
Chef beauftragt das Nähere über
die Geburt und das Kind zu
veröffentlichen. Hierzu wären
uns zwei in Ihrer Schrift, Large
bile cyst of the Liver etc. in der
Literatur nicht erwähnte Ar-
beiten sehr willkommen, um
deren gefällige Zurendung wir
bitten möchten, falls Sie Ihnen
in Separatdrucken noch zur
Verfügung stehen, es handelt
sich um

1) Locking, W. T. A. Case of Perisista
Jaundice of Fifty Years' Stan-
ding. Quarterly Med. Journ. for

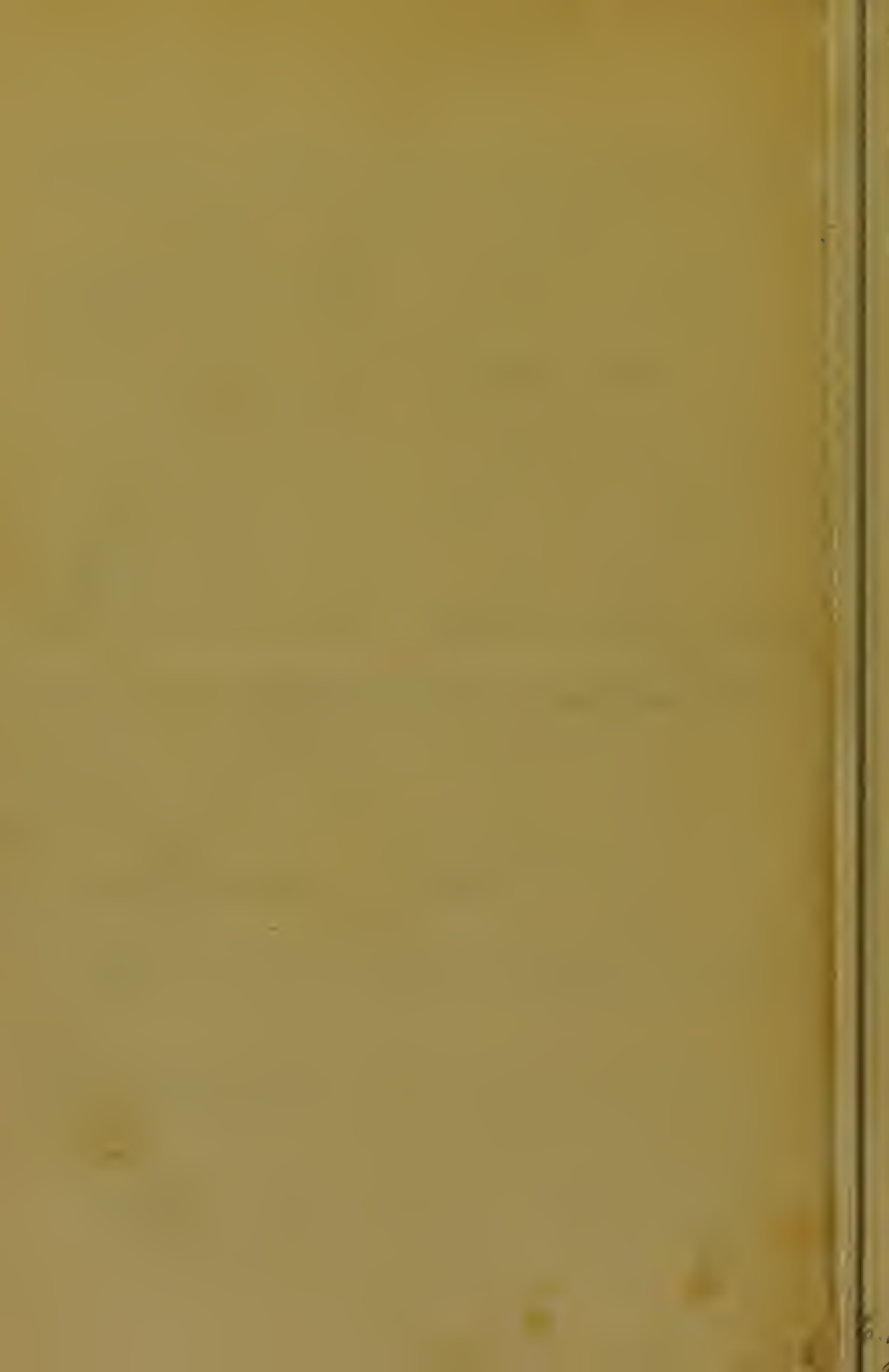
Yorkshire and Adjoining Counties
vol. xi, Pt. II Feb. 1895 p. 104

Dr. von Alban. Cholecystotomy
in a case of chronic jaundice
and Cholangitis. West London
Med. Journ. Jan 03.

Ihr Voraus für Ihre Bemühun-
gen bestens dankend
ergebenst

Dr. Kühn, Assistenzarzt
d. Hebammenlehranstalt zu
Osnabrück.

L. Bode 17. März 1895



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DISCUSSION.

Mr. W. BRUCE CLARKE considered that Mr. Alban Doran had left his view of the pathology of this case a little obscure. It was either dependent on the injury, or it was a retention cyst or a congenital cyst. More probably the injury was the cause. A somewhat analogous case was that of a man whom he had had under his own care and who suffered from hydronephrosis and had epileptic fits as well. During a fit he fell and struck his side on a hard object, with great collapse ensuing. This passed off, but it was noticed that the kidney had become increased in size, and some six weeks later, when the kidney was operated on, it was found that a renal vein had ruptured into the hydronephrotic cyst, and the blood had separated into clot and fluid. Traumatic hydronephrosis, too, was to some extent parallel with the suggested aetiology. Dr. Miller's case, which Mr. Doran quoted, was in a child of three or four years of age, and was thus hardly comparable with the present case. The jaundice in the present case was probably due to obstruction by pressure, and catarrh of the ducts probably prevented the flow of the bile after the operation when the pressure had been relieved. The connection of this case with mobility of the kidney was interesting, and the mobility was probably directly due to the liver cyst. The diagnosis lay between a hydatid cyst, a simple cyst, and a cyst connected with malignant disease. Except for the duration of the case there was no symptom or sign that could differentiate these conditions.

Mr. A. C. BUTLER-SMYTHE referred to the difficulty of diagnosis in the present case. He had seen the patient before operation, and had formed the opinion that there was probably a large distension of the gall-bladder. With regard to the nature of the cyst, he thought that the diagnosis might have been settled by cutting off a portion of the wall of the cyst at the time of the operation. The gall-bladder and the ducts were greatly pressed upon by the cyst, and he thought that the jaundice was probably more due to mechanical obstruction than to actual obliteration of the ducts. With regard to the movable kidney which was present on the right side, he was of opinion that the right kidney could in a large majority of cases be felt

in a woman who had had more than one pregnancy. He did not consider that the administration of chloride of calcium had much effect in preventing the occurrence of hæmorrhage. In his opinion the flow of bile coming on soon after the operation eliminated the theory of a calculus as a cause of the trouble, and it was an undecided point whether the liver substance had been injured or not.

The PRESIDENT referred to the non-appearance of the flow of bile after the operation, and suggested it might be explained by the fact that a large bile-duct opened into the cyst, and that the readiest course for the bile was through the cyst, so that it was not until the cyst began to contract that the bile began to flow along its normal track.

Mr. ALBAN DORAN, in reply, said that he considered the explanation given by the President highly probable. In support of the traumatic theory of origin dwelt on by Mr. Bruce Clarke he instanced the case of a boy who, while romping, was struck in the right hypochondrium. There followed great increase in the area of the hepatic dulness, and a fortnight later there came on evidence of acute anæmia and he died: this he considered suggested the formation of a blood-cyst in the liver. There was no evidence whatever of calculus in the case described in his paper. Mr. Doran had hinted that a congenital origin of the cyst was just possible though hardly probable. Congenital malformations sometimes remained latent in childhood yet underwent active changes in adult life.

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